MANUAL CHAPTER 2503

CONSTRUCTION INSPECTION PROGRAM: INSPECTIONS OF INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA (ITAAC)

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CONSTRUCTION INSPECTION PROGRAM:
INSPECTIONS, TESTS, ANALYSES, AND ACCEPTANCE CRITERIA
(ITAAC)

2503-01 PURPOSES

01.01 To specify the policy and inspections used for the NRC's inspection of the Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC) of a combined license.

01.02 To provide guidance for inspections to support the Commission's determination, in accordance with 10 CFR 52.103(g), that the acceptance criteria in the combined license have been met.

01.03 This is the initial issuance of Inspection Manual Chapter(IMC) 2503. The staff recognizes that this IMC will likely undergo significant revisions during the next several years as both internal and external stakeholders provide feedback. This initial issuance is intended to promote such feedback, in order that the inspection program described in this IMC can benefit from the resulting revisions prior to the start of construction of future plants.

2503-02 OBJECTIVES

02.01 To provide guidance to inspectors for verifying that ITAAC-related activities are performed successfully.

02.02 To provide a sufficient basis to support the Commission determination in accordance with 10 CFR 52.103(g) that the acceptance criteria in a combined license have been met and that the licensee be allowed to load fuel.

2503-03 DEFINITIONS

03.01 Construction Activities. Any activity associated with the construction, fabrication, or testing of structures, components, subcomponents, subsystems, or systems either at the construction site or at remote fabrication or testing facilities. Construction activities also include related design and engineering activities including design changes for the structures, systems, and components.

03.02 Construction Inspection Finding. A finding where additional action is needed by the NRC, the licensee, or both, before the impact of an issue on an ITAAC can be determined fully.

03.03 Construction Inspection Program Information Management System (CIPIMS).The computer database that provides the means to document, report, and track all NRC inspection activities and their results. It provides the means to integrate designated NRC inspections with their associated ITAAC and ultimately the results of those inspections with ITAAC determinations.

03.04 Contractor. Any organization under contract for furnishing items or services to a licensee. It includes the terms consultant, vendor, supplier, fabricator, constructor, and subtier levels of these organizations.

03.05 Family of ITAAC. A grouping of ITAAC that are related through similar construction processes, resulting products, and general inspection attributes.

03.06 Inspection. (1) An NRC activity consisting of examination, observation or measurements to determine applicant/contractor conformance with requirements and/or standards. (2) Applicant/contractor quality control measures consisting of examination, observation or measurements to determine the conformance of materials, supplies, components, parts, systems, processes or structures to pre-determined quality requirements.

03.07 Inspection Assessment. Periodic reviews of inspection findings by NRC management to determine if the current level of inspection effort should change.

03.08 Inspection Observation. A documented evaluation regarding the acceptability of licensee construction activities.

03.09 Inspection Sample. Items or groups selected for inspection of one or more inspection characteristics. For example, an inspection sample may be a review of welding records or an entire system selected as a sample during a system walkdown inspection.

03.10 Inspections, Tests, Analyses, and Acceptance Criteria (ITAAC). Those inspections, tests, analyses, and acceptance criteria identified in the combined license that if met are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will operate in conformity with the license, the provisions of the Atomic Energy Act , and the Commissions rules and regulations. The ITAAC identified in a combined license referencing a certified design will include the ITAAC defined in theTier 1 documentation. Site-specific ITAAC, which include emergency planning ITAAC and ITAAC that are not part of the certified design, will also be included in a combined license. ITAAC are conditions of the license and must be met before fuel load.

03.11 ITAAC Attributes. A number of common, descriptive characteristics for each ITAAC that can be analyzed and weighted by a methodology that allows the ITAAC to be prioritized for inspection planning. [Note: The five ITAAC Attributes selected for ITAAC prioritization are defined and described in Appendix C.]

03.12 ITAAC Determination. An NRC staff decision on the successful completion of an ITAAC that is based on the licensee's work records for and the NRC inspection record related to that ITAAC.

03.13 ITAAC Finding. A finding of such significance that it could prevent the NRC from reaching a positive ITAAC determination. An ITAAC finding may be related to a single ITAAC or a family of ITAAC.

03.14 ITAAC Matrix. An inspection planning tool that identifies groups (i.e., "families") of ITAAC, based upon common characteristics, which facilitate the ITAAC inspection sampling process and provide a consistent model for the inspection of ITAAC at plants of a similar design.

03.15 Minor Issues. Any inspection result that does not affect the successful completion of an ITAAC or a licensee program. These results may include issues related to record keeping; insignificant dimensional, time, calculation, or drawing discrepancies characterized by minor discrepant values referred to in the licensee's Final Safety Analysis Report (FSAR) or design documents; or insignificant procedural errors that have no impact on the quality of design, fabrication, erecting or testing.

03.16 Open Item. Any inspection item requiring additional followup by the NRC.

03.17 Quality Assurance. Quality Assurance (QA) comprises all those planned and systematic actions necessary to provide adequate confidence that a structure, system or component will perform satisfactorily in service. Quality Assurance includes quality control.

03.18 Regulatory Finding. A finding that has no impact on the ITAAC but raises other regulatory concerns.

03.19 SAYGO (Sign-as-you-go) Process. A phased review approach that requires NRC inspectors to document observations of portions of ITAAC throughout the construction process as they are successfully completed by the licensee. SAYGO is related to inspection assessment when the determination can be made that sufficient information is available to sign-off that a process is working successfully and reduce inspection efforts in that area.

03.20 Tier 1 Material. Tier 1 refers to the portion of the design related information contained in the design control document that is approved and certified by the NRC through the rulemaking process. Tier 1 information includes : Definitions and general provisions; design descriptions; ITAAC; significant site parameters; and significant interface requirements.

03.21 Tier 2 Material. Tier 2 refers to the portion of the design related information contained in the design control document that is approved but not certified by the NRC. Tier 2 information includes : Information required by 10 CFR52.47with the exception of technical specifications and conceptual design information; Information required for a final safety analysis report under 10 CFR 50.34; supporting information on ITAAC that will be performed to demonstrate that the acceptance criteria have been met; and Combined License (COL) information items which identify certain matters that are addressed by a COL applicant that references a certified design. Tier 1 material is derived from Tier 2 material. Compliance with Tier 2 is required and demonstrates a sufficient but not the only method for complying with Tier 1.

2503-04 RESPONSIBILITIES AND AUTHORITIES

04.01 Office of Nuclear Reactor Regulation (NRR).The Director, NRR, has responsibility for:

a. Providing the overall direction of the construction inspection program and directing the development and implementation of policies, programs and procedures for the construction inspection program.

b. Providing inspector resources to support and augment regional inspector resources assigned to construction projects.

c. Publishing notices in the Federal Register of the successful completion of ITAAC in accordance with 10 CFR 52.99.

d. Making the recommendation to the Commission regarding a determination pursuant to 10 CFR 52.103(g) that the acceptance criteria have been met.

04.02 Regional Office. The Regional Administrator (RA) has responsibility for:

a. Supporting the Commission finding required by 10 CFR 52.103(g) by informing the Director, NRR, on the licensee's completion of the ITAAC, the plant's readiness to load fuel, and the overall readiness for operation.

04.03 Construction Inspection Staff. The Construction Inspection Staff (CIS) has responsibility for:

a. Administrating and implementing the construction inspection program and issuing inspection reports.

b. Providing NRR with the status of inspections related to specific ITAAC.

c. Acting as the licensee's primary NRC contact for the construction inspection program.

d. Coordinating the development of the site inspection plan.

e. Integrating all of the inspection findings to develop an overall assessment of licensee performance.

2503-05 BACKGROUND

05.01 General. When licensing a plant under 10 CFR Part 52, the Commission is required by § 52.97(b)(1) to identify "...within the combined license, the inspections, tests, and analyses; including those applicable to emergency planning that the licensee shall perform, and the acceptance criteria that, if met, are necessary and sufficient to provide reasonable assurance that the facility has been constructed and will be operated in conformity with the license, the provisions of the Atomic Energy Act, and the Commission's rules and regulations."

In addition, § 52.103(g) requires that "... the Commission shall find that the acceptance criteria in the combined license are met" prior to allowing the facility to load fuel and operate. Successful completion of the ITAAC are the responsibility of the licensee, however, the NRC will use inspections of construction activities to independently verify that the licensee successfully carries out construction activities and identifies and corrects deficiencies which may have an impact on the ITAAC. The results of the construction inspection program implemented through this manual chapter will form the basis of the staff's recommendation to the Commission's determination, in accordance with 10 CFR 52.103(g), of whether the acceptance criteria have been met.

05.02 ITAAC Inspection Overview. The NRC may begin ITAAC inspection and verification when an applicant begins procurement of long lead time components, such as reactor vessels. Since many of the ITAAC are oriented towards system completion, they may not be completed until construction is nearly complete. Therefore, the staff intends to implement an ITAAC verification approach which will require NRC inspectors to inspect ITAAC-related construction activities as they are performed to ensure that the licensee is successful in activities that contribute to the overall completion of an ITAAC.

The NRC has developed a framework to prioritize the ITAAC and allow for more efficient inspections. This framework is structured to integrate complementary inspection activities that evaluate the licensee's control of the relevant construction processes to ensure quality. Central to the NRC's inspection program for construction under 10 CFR Part 52 is the "ITAAC Matrix" which provides a means for ensuring adequate inspection coverage of ITAAC inspections. The matrix will be populated with the ITAAC applicable for each certified design as described in Appendix B to this manual chapter. Site specific ITAAC will be added to the matrix population once they have been identified.

The approach to ITAAC verification will also require inspectors to inspect and determine the acceptability of ITAAC-related processes such as welding. For example, after the staff has inspected a specified number of welds being performed by a specific organization, the staff may determine that "the process" is being conducted in a manner that satisfies the ITAAC-related process and may consider all additional welds conducted by this organization to be acceptable for the purposes of satisfying the ITAAC-related welding requirements.

The NRC will perform sampling-type inspections of ITAAC-related activities as applicable to verify that the licensee is performing the activities successfully. The selection of the ITAAC for each design to receive direct inspection will be based on a characterization of the ITAAC using a standardized process conducted by expert panels.

Inspection timing will be driven by the construction schedule. Inspectors will use the ITAAC related inspection procedures and the FSAR to support their inspection effort. If the COL references a certified design, the Tier 2 information will be included in the FSAR. In addition to the ITAAC associated with the design (certified or custom), the FSAR provides the basis for successful completion of site-specific ITAAC and emergency planning ITAAC.

When the licensee notifies the NRC that an ITAAC for a structure, system or component (SSC) is complete, they will also identify the bases for the ITAAC completion. NRC reviews of the licensee's ITAAC documentation as well as any NRC inspection history for that ITAAC will determine if the licensee's ITAAC completion letter and its associated bases are satisfactory. ITAAC inspections required by the inspection plan shall be complete before an ITAAC determination can be made by the NRC.

The staff will use the Construction Inspection Program Information Management System (CIPIMS) to link inspection results to the docket, the inspection report, and the specific ITAAC.

2503-06 PROGRAM REQUIREMENTS

06.01 Inspection Requirements. The inspection procedures (IPs) applicable during construction are provided in Appendix A to this manual chapter. The listed IPs will be used, as necessary, by NRC inspectors when conducting ITAAC verifications or inspections of ITAAC-related construction activities. During the inspection planning process, the inspection team will identify any reactor design-specific areas to be inspected. If necessary, additional inspection guidance will be developed for each additional area identified.

06.02 Level of Effort. The inspection effort will be driven by the requirements of the site specific inspection plan and associated inspection procedures, and shall be sufficient to avoid unnecessary delays in the construction of the facility due to NRC inspection activities. The amount of inspection effort required to ensure the same level of confidence that construction is adequate may vary from site to site. Similarly, different types of construction activities at the same site or at remote locations away from the construction site may require varying levels of effort to provide the same degree of assurance of quality work.

2503-07 PROGRAM MANAGEMENT

07.01 Inspection Planning. As soon as practical during the license application process, the CIS shall develop an inspection plan to verify that ITAAC related construction activities are being successfully performed. The plan shall provide the level of detail necessary to determine: 1) the relation between the inspection procedures and ITAAC, and 2) the general time-frame in which each occurrence of an inspection procedure is to take place.

a. The construction inspection schedule shall implement the inspection plan for both onsite and remote facilities. The licensee's construction schedule shall be used to identify when key activities will be available for inspection.

b. The overall schedule will incorporate all of the planned inspection activities for the entire planned period of construction (the maximum duration the licensee has planned). The CIS should review this schedule regularly to adjust it for changes to the licensee's construction schedule. The overall construction inspection schedule will be used for planning of inspection resources (i.e., ensuring the required inspection skills or engineering disciplines are available when required).

07.02 Implementation. The CIS is responsible for the implementation of the inspection program described in this chapter and related appendices.

The inspection program is intended to provide the framework for managing the inspection effort. Appendix B, ITAAC Matrix, describes the method used to organize the ITAAC for a specific design and to establish the link between ITAAC and their related inspection procedures. Appendix C, Sample Selection, describes the method for characterizing each of the ITAAC and for determining appropriate inspection samples for each inspection procedure. When and how often each inspection procedure should be performed during the construction period, and when each inspection procedure occurrence should be performed will be determined during development of the site specific inspection plan.

Inspectors are encouraged to pursue any safety or risk significant concern. However, inspectors must identify the inspection procedure used to perform inspection activities and to accurately record this information and the inspection results so they can be incorporated into CIPIMS.

The CIS has the lead responsibility for inspection interaction with the licensee. Specialist inspectors are expected to discuss their planned inspection activities and inform the CIS of their inspection findings before exiting.

Regional managers responsible for the construction inspection program shall periodically review inspection results to monitor progress on the inspection plan. In addition, regional managers may change the scope of the inspection effort if they determine that additional inspection effort may be needed to complete follow-up inspections of NRC findings or allegations. Changes to the site specific inspection plan which reduce the level of inspection effort shall be authorized by regional management. The CIS will make the changes to the site specific inspection plan and related inspection schedules.

07.03 Inspection Results. Although construction activities are the responsibility of the licensee, NRC inspections of ITAAC should strive to result in the early identification and resolution of problems, their root causes, and generic implications. Inspection results are expected to include the NRC inspectors' conclusions regarding the acceptability of the observed construction activities as well as findings which may impact successful ITAAC completion. All inspection observations and inspection results will be documented in accordance with IMC 0613.

a. Categories of ITAAC Inspection Results. Because of their potential for affecting the NRC's determination of successful ITAAC completion, inspection findings will be categorized to reflect their impact on plant specific ITAAC. The documentation requirements for the different types of inspection results are described in IMC 0613, Construction Inspection Reports. Listed below are the categories into which inspection findings will be placed.

    1. ITAAC Finding - A finding which indicates that the NRC has determined that the acceptance criteria has not or will not be met if the deficiency is not corrected. An ITAAC finding will result in the licensee being asked to provide a root cause analysis and a determination of the extent to which the condition may exist. Both NRC and licensee management are expected to have involvement in the resolution of these types of issues. The issue will be assigned an NRC tracking number in CIPIMS that will be tied to the related ITAAC. Followup inspections and reviews will monitor and document licensee corrective actions until closure. Any followup reviews and the basis for closing an ITAAC finding must be documented in an inspection report to

ensure a complete history of the issue in the public record. An ITAAC determination submitted by a licensee for a specific ITAAC will not be accepted by the NRC for closure if an ITAAC finding remains open against that ITAAC.

2. Construction Inspection Finding - A finding where additional action is needed by the NRC, the licensee, or both, before the impact of an issue on an ITAAC can be determined fully. A construction inspection finding can be identified while inspecting non-ITAAC activities. If an impact is linked to an ITAAC, a construction inspection finding may become an ITAAC finding. The issue will be assigned an NRC tracking number in CIPIMS that will be tied to the related ITAAC. Any followup reviews and the final disposition of a construction inspection finding must be documented in an inspection report to ensure a complete history of the issue in the public record.

3. Regulatory Finding - There will most likely be cases where there is an overlap between an ITAAC finding and a regulatory finding. In these cases the ITAAC finding will take precedence over the regulatory finding but both issues will need to be addressed. This category is intended to bin a finding that has no impact on the ITAAC but has the potential for impacting the NRC's ability to perform its regulatory function. A failure by the licensee to provide complete and accurate information unrelated to an ITAAC would be considered a regulatory finding . A regulatory finding will be assigned an NRC tracking number in CIPIMS.

4. Minor Issues - Issues that would not affect the licensee's ability to meet the ITAAC. These include minor record keeping issues, insignificant dimensional, time, calculation, or drawing discrepancies, or insignificant procedural errors that have no impact on the quality of design, fabrication, erecting or testing. Issues in this category are expected to be resolved successfully by the licensee through the corrective action program.

b. Assessment of Inspection Results. NRC will periodically review inspection results to determine if the current level of inspection effort should be changed. The review of inspection results will focus on two factors: (1) the implementation of specific construction activities as documented in the inspection history and (2) the implementation of the licensee's quality assurance program. This approach will assure that any deficiencies that have been identified by the licensee or NRC have been adequately addressed by the licensee's QA program and have resulted in effective corrective actions. The NRC's confidence in the licensee's ability to ensure quality construction activities is directly related to confidence in the quality assurance program.

Reviews of the inspection history will focus on families of ITAAC. If the inspection history of a family identifies that activities are being effectively implemented and deficiencies are being appropriately addressed, NRC management may consider reducing inspection efforts in that area. This could also reduce the inspection effort in other areas which are affected by this same activity or process. The decision could also be used at a later time by the staff to make a determination that particular ITAAC have been met by the licensee.

However, if a review of the inspection history for a family of ITAAC identifies that construction deficiencies are not being effectively corrected, it could call into question the effectiveness of the licensee's quality assurance and corrective action programs. It may also, if not corrected, prevent the staff from making a determination that ITAAC within that family are being completed successfully. Whenever this situation is identified, the licensee will be asked to identify specific correction actions taken or planned to address the identified quality assurance program deficiencies. The NRC will verify the effectiveness of any corrective actions. Upon verification of effective corrective actions, CIS management will reassess the construction activity, process, or component.

c. Periodic Review Determinations. The CIS will review the inspection history periodically and will make changes to the level of inspection in specific areas as needed.

07.04 ITAAC Determinations.The licensee will notify the NRC when an ITAAC for a structure, system or component (SSC) is complete. An NRC staff decision on successful ITAAC completion will be called an ITAAC determination. NRC reviews of the licensee's ITAAC documentation as well as the NRC's related ITAAC inspections will determine if the licensee's basis for ITAAC completion are satisfactory. The NRC will review each ITAAC completion basis for adequacy and accuracy. The NRC's determination of successful ITAAC completion will be based primarily on prior day-to-day onsite and offsite inspection activities which will have been documented in inspection reports and tracked in CIPIMS. The inspection history may reflect any or all of the following: direct inspection related to the specific ITAAC; inspection results from direct inspection of similar ITAAC within an ITAAC family; and inspection results from direct inspection of processes related to that specific ITAAC. The NRC will publish in *Federal Register* notices the successful completion of inspections, tests, and analyses, as required by 10 CFR 52.99.

If new and significant information questions the validity of a previously accepted ITAAC determination, a CIS manager will assess the information and determine the appropriate course of action. If it is determined that a previously acceptable ITAAC determination is no longer acceptable, an NRC senior manager will direct that the earlier ITAAC determination be reassessed. Consistent with past practices, the licensee will be given an opportunity to provide any new information, (potentially including extensive corrective actions), to the NRC which might affect the reversal of previously accepted ITAAC determination.

07.05 Enforcement. During the construction period, the agency will process identified violations of NRC regulations and conditions of the COL as set forth in the Commission's Enforcement Policy, NUREG-1600, "General Statement of Policy and Procedures for NRC Enforcement Actions."

END

Appendix A: IMC-2503 Core Inspection Procedures
Appendix B: The ITAAC Matrix
Appendix C: Sample Selection
Appendix D: Revision History for IMC 2503

APPENDIX A: IMC-2503 CORE INSPECTION PROCEDURES

IP 65001	- ITAAC Inspections
65001.01	- Foundations and Buildings
65001.02	- Structural Concrete
65001.03	- Piping
65001.04	- Pipe Supports & Restraints
65001.05	- RPV & Internals
65001.06	- Mechanical Components
65001.07	- Valves
65001.08	- Electrical Components & Systems
65001.09	- Electrical Cable
65001.10	- I&C Components & Systems
65001.11	- Containment Integrity & Penetrations
65001.12	- HVAC
65001.13	- Equipment Handling & Fuel Racks
65001.14	- Complex Systems with Multiple Components
65001.15	- Fire Protection
65001.16	- Engineering
65001.17	- Security
65001.18	- Emergency Planning
65001.19	- Radiation Protection
65001.A	- As Built Inspection
65001.B	- Welding
65001.C	- Construction Testing
65001.D	- Operational Testing
65001.E	- Qualification Criteria
65001.F	- Design/ Fabrication Requirements

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APPENDIX B: The ITAAC Matrix

BACKGROUND: The goal of inspections conducted under IMC-2503 is to verify licensee compliance with all QA and 10 CFR Part 52 ITAAC requirements, as well as other relevant NRC regulations, using an integrated inspection and review strategy. The quality assurance (QA) requirements delineated in 10 CFR Part 50, Appendix B and the ITAAC associated with a specific design, provide criteria that are integral to the "reasonable assurance" that any facility licensed under Part 52 has been constructed and will be operated in conformance with the license and the NRC rules and regulations.

The construction inspection program (CIP) developed to support reactor licensing under Part 52 uses sampling-type inspections to verify successful ITAAC completion and to confirm that the licensee construction activities have been properly controlled. While the ITAAC may be viewed as a distinct set of verifiable inspection points, the need for a comprehensive assessment of facility construction dictated the development of an integrated NRC inspection strategy. The strategy needed to use sampling techniques not only to validate the ITAAC, but also to govern the conduct of construction process inspections and related SAYGO reviews.

The ITAAC inspection philosophy contained in IMC-2503 recognizes that several ITAAC are expected to be closely related, thereby providing the NRC with the opportunity to evaluate a group of ITAAC based upon an examination of some representative ITAAC within the group. Such an inspection approach would allow for the efficient use of NRC inspection resources not only for the ITAAC examinations, but also for the routine evaluation of the construction processes that result in the ITAAC products and completion.

OBJECTIVE: A framework was developed by the NRC to manage ITAAC inspections, while recognizing the need for a sampling-inspection approach. This framework was structured to integrate into the NRC inspection program certain complementary inspection activities that evaluate the licensee's control of the relevant construction processes for product quality, QA verification, and assessment purposes. Central to the NRC's CIP for construction under 10 CFR Part 52 is a tool that provides a coherent approach to the adequate coverage and completion of the ITAAC inspections. This tool is called the ITAAC Matrix and is shown in Figure 1.

OVERVIEW: The ITAAC Matrix is considered both an inspection methodology, as well as an inspection planning tool. The ITAAC Matrix provides a means for assigning each ITAAC into an applicable matrix block. Each single matrix block represents a combination of ITAAC characteristics related to the specific construction disciplines and its related interdisciplinary inspection process.

Each of the nineteen rows of the Matrix represent specific construction disciplines (i.e., the processes and resulting products) and those listed in the six columns represent general interdisciplinary inspection processes (including the relevant acceptance criteria). The IPs for the 19 Matrix rows provide guidance on the inspection of specific technical disciplines, while the IPs for the six Matrix columns discuss those inspection criteria that crosscut disciplinary boundaries. The 25 core IPs developed to address all Matrix categories provide a template not only for ITAAC inspections, but also for the inspections of the adequacy of the licensee control of the construction processes and also of the resultant construction quality.

This facilitates the process of inspecting the selected sample of ITAAC, but also ensures adequate coverage of all construction disciplines, whether directed to a specific category of construction products (e.g., [03] Piping), or more generally, to an interdisciplinary construction process (e.g., [B] Welding). For example, all ITAAC within a specific plant design that discuss instrumentation and control (I&C) components and systems in concert with specific as-built inspection criteria would be "binned" in the matrix block formed at the intersection of row (10) and column (A). The ITAAC that are "binned" in any particular matrix block are considered to represent an ITAAC family. The ITAAC within a family are connected by their common characteristics.

<u>POPULATING THE ITAAC MATRIX:</u> Each ITAAC for a specific design is evaluated and assigned to the appropriate family by selecting the appropriate combination of row and column. Site specific ITAAC will also be added to the population once they have been identified.

a. An NRC "expert panel" reviews all the ITAAC for each certified design and for each custom design. An expert panel will generally consist of a minimum of three NRC personnel with some combination of expertise in plant construction, reactor risk, and project licensing, including some relevant plant design and ITAAC experience or knowledge.

b. The expert panel convened to populate the Matrix will review each of the ITAAC and will place it in one of the blocks of the ITAAC Matrix.

c. Once the expert panel determines where in the Matrix each of the ITAAC for a particular design should be placed, all facilities constructed with that particular design will use that specific, filled-out ITAAC Matrix.

This use of a single ITAAC Matrix format provides a consistent framework for developing the inspection programs for each of the different reactors that are licensed and built under 10 CFR Part 52. Additionally, this also ensures a degree of consistency in the inspection program within any specific design.

<u>MATRIX USAGE</u>: The ITAAC Matrix is not intended to provide a rote set of directions of which ITAAC should be inspected or which construction processes should receive the most NRC attention. Rather, the Matrix establishes a framework within which such decisions can be made. The matrix must be coupled with techniques outlined in Appendix C to this manual chapter for selecting an appropriate inspection sample. When used together, the Matrix and sampling methodology can provide an effective tool for planning and conducting inspections and for performing assessments of inspection results in support of the CIP.

- Inspection Planning - Once the ITAAC for a particular facility design have been assigned to the Matrix, inspectors will review them during pre-inspection preparations. For example, an NRC concrete specialist can examine all the ITAAC in matrix row (02) when planning to conduct the inspection of structural concrete. If the same inspector also planned on checking as-built criteria, such as the site elevation of a concrete slab or the wall thicknesses for specific concrete building placements, the review would concentrate on the family of ITAAC formed by the intersection of row (02-concrete) with column (A-as-built). Whether performing a specific construction process inspection (the matrix row IPs) or an inspection involving interdisciplinary criteria (the matrix columns), the inspector would have a listing of the ITAAC "families" residing in the matrix blocks that relate to the planned inspection.

- Sample Selection - The family of ITAAC assigned to a particular matrix block by the expert panel are linked by the common characteristics they share. This common linkage can therefore be used to identify appropriate ITAAC to sample during inspection. The sample selection process described in Appendix C is designed to be used together with the matrix to establish a valid ITAAC inspection sample to form an adequate basis for a "reasonable assurance" conclusion of construction adequacy.

- Documentation of Inspection Results - The NRC will use the Construction Inspection Program Information Management System (CIPIMS) to manage information related to construction inspection activities. CIPIMS will contain information on the ITAAC Matrix applicable to the facility being inspected. CIPIMS will be used to record inspection results. Within CIPIMS, a specific ITAAC will be linked to its ITAAC family, each family will be linked to the associated inspection procedures, and each inspection procedure will be linked to the inspection report where results are described. Therefore, when the ITAAC Matrix is used in conjunction with CIPIMS, the inspection record provides more complete documentation of how various inspection activities relate to successful ITAAC completion.

  An integrated inspection procedure number and ITAAC matrix family code was developed to establish the link between the ITAAC Matrix and CIPIMS. The inspection procedures developed for each of the 25 Matrix categories can all be distinguishable by the numbering system that matches the Matrix. For example, the "Structural Concrete" IP will always be identified by an (02) identifier; the "Piping" IP with (03); the "As-built Inspection" IP with (A); etc. The usage of such a common and consistent inspection procedure identification and marking system will not only benefit CIPIMS, but will also simplify the way the inspection procedures are documented in inspection reports and assessed for their routine implementation within the context of the IMC-2503 inspection program defined by the ITAAC Matrix.

- Assessment of Inspection Results - The ITAAC Matrix provides for flexibility in the conduct of inspections and integrating the inspection results into the decisions on where to dedicate future inspection resources. If the inspection results within a particular ITAAC Matrix family do not identify significant problems, the inspection results assessment process can redirect future inspections and additional sample selections to more problematic areas. In this way, the ITAAC Matrix supports both pre-inspection planning and mid-course decision-making for redirecting NRC inspection resources to areas of need or areas that best support the objectives of IMC-2503.

NRC process inspections provide a mechanism for checking the effectiveness of the licensee's QA program, in addition to verifying the ITAAC completion and acceptance.

SUMMARY:

IMC-2503 is specifically dedicated to the NRC review and verification of the ITAAC. The ITAAC Matrix emphasizes that inspections of the ITAAC are also part of a larger inspection context. For example, when inspecting ITAAC in a family related to both "Piping" (03) and "Welding" (B), the specific inspection attributes for any ITAAC in this family should be covered by the guidance delineated in either the (03) or (B) inspection procedures. However, these inspection procedures cover more than ITAAC inspection guidance. Since the quality of the structures, systems, and components produced during construction is directly related to the control of the quality process used in producing them, the construction inspection program must address process inspections and provide inspection guidance in the procedures for those activities as well.

The correlation of a particular NRC inspection to an individual ITAAC might be direct if a specific ITAAC is planned for inspection. On the other hand, the planned inspection could be indirectly correlated to several ITAAC by evaluating "pipe welding" to determine whether the process is being maintained with the proper quality controls. In the latter case, a determination may be made to reduce further inspections of the process and its related ITAAC.

The ITAAC Matrix would be used, in conjunction with CIPIMS, to facilitate NRC decisions by ensuring that appropriately related activities are considered when making the decision to change the level of inspection. A reduction in inspection effort would be justified if the existing inspection findings related to a construction process (e.g., pipe welding) indicate acceptable licensee controls and demonstrate that other ITAAC in the family in the matrix block at the "Piping" (03) and "Welding" (B) intersection have been inspected using an appropriate sample.

Therefore, whether used for inspection planning, for redirecting inspection resources during the course of facility construction, or for assessing construction quality and successful ITAAC completion, the Matrix must be used with the other CIP programs (e.g., CIPIMS, QA program checks) to accurately reflect and provide evidence of the quality of the completed facility. Development of the ITAAC Matrix was intended to be only one piece in the larger IMC-2503 program designed to determine whether the licensee has demonstrated that the ITAAC for a particular facility have been satisfied.

Figure 1: THE ITAAC MATRIX FRAMEWORK

	A)As-Built Insp	B) Welding	C)Const Testing	D) Opn Testing	E)Qual Criteria	F)Design /Fab Req
01)Foundations & Buildings	A01	B01	C01	D01	E01	F01
02)Struc Conc	A02	B02	C02	D02	E02	F02
03)Piping	A03	B03	C03	D03	E03	F03
04)Pipe Spt & Restraints	A04	B04	C04	D04	E04	F04
05)RPV & Int'ls	A05	B05	C05	D05	E05	F05
06)Mech Comp	A06	B06	C06	D06	E06	F06
07)Valves	A07	B07	C07	D07	E07	F07
08)Elec Comp & Systems	A08	B08	C08	D08	E08	F08
09)Elec Cable	A09	B09	C09	D09	E09	F09
10)I&C Comp & Systems	A10	B10	C10	D10	E10	F10
11)Containment Integrity & Pen's	A11	B11	C11	D11	E11	F11
12)HVAC	A12	B12	C12	D12	E12	F12
13)Eqp Handle & Fuel Racks	A13	B13	C13	D13	E13	F13
14)Complex Sys w/ Multi-Comp	A14	B14	C14	D14	E14	F14
15)Fire Prot	A15	B15	C15	D15	E15	F15
16)Engineering	A16	B16	C16	D16	E16	F16
17)Security	A17	B17	C17	D17	E17	F17
18)EP	A18	B18	C18	D18	E18	F18
19) Rad Prot	A19	B19	C19	D19	E19	F19

- Column Categories [A thru F]: Interdisciplinary NRC inspection activities that represent common "ITAAC areas" for which general inspection attributes can be assigned. An NRC inspection procedure (IP) will correspond to each column category.
- Row Categories [1 thru 19]: Construction processes & resulting products (e.g., SSC) that relate to a unique discipline, with an IP corresponding to each row category.

NOTES:

Column Classification

[A] "As-Built Inspection" comprises the functional/physical arrangement series of ITAAC, to include checks for location, alignment, dimensions, sizing, and measurements, and may include functional checks, unless related to testing (which would be covered by [C] or [D]) or a design report/analysis (which would be covered by [F]). Simple calculations (e.g., a screen area or tank volume) that can be made from field measurements or sizing estimates would be covered here based upon the dimensional checks; however, more complex calculations, even if field measurements are involved, would better be categorized in [F]. If a single ITAAC involves both as-built information, like a physical or dimensional check, and other criteria, like those for an operational test [D] or design analyses/calculations [F], the [D] or [F] categories, as applicable, would take preference over this as-built [A] category. Also, checking that a meter or display is located properly (e.g., is on the Main Control Board) would be categorized here [A], while reading the meter or retrieving data from the display as part of an operational test would better be categorized in [D].

[B] "Welding" comprises those ITAAC which address any welding process, whether code referenced (e.g., ASME piping) or oriented to other processes (e.g., structural steel or electrical supports). This category also includes those ITAAC which address or provide criteria for weld quality, e.g. the requirements for the nondestructive examination (NDE) of welds. Additionally, activities and programs related to the welding process (e.g., welder training, testing, and certification; weld procedure qualification; NDE personnel and procedure qualification; other weld testing activities) are all included in this welding [B] category.

[C] "Construction Testing" includes specific ITAAC tests that are associated with the quality of component fabrication and construction activities, to include quality acceptance tests (e.g., concrete testing or simulated signal testing to confirm Class 1E division boundaries), baseline data checks (e.g., PSI), and field-work completion testing (e.g., "hydro's") or any other similar construction testing activities. In-process field testing of individual pieces of equipment would be covered here, while the construction-complete, pre-operational test phases leading to integrated system testing would better be categorized in [D]. However, the testing (e.g., "type tests") of equipment for "qualification" in a harsh environment (EQ) or in analyzing seismic response, as well as for other like programmatic "qualification criteria", should be covered by [E], as described in note (E) below.

[D] "Operational Testing" involves testing activities that check component and system function by measuring operational parameters (e.g., flow requirements) and/or validating operational performance acceptance criteria (e.g., component actuation with signal inputs or similar "pre-op" testing). Such tests might be performed on a single component, an individual system, or a complex, integrated system. Similarly, as with "Construction Testing" above, "type tests" and equipment "qualification" should be covered by [E].

[E] "Qualification Criteria" includes seismic qualification, environmental qualification (EQ) and other ITAAC qualification programs and any related program attributes that are oriented toward broad design criteria versus the specific test parameters of [C] or [D]. The characteristics of such programs as the Design Reliability Assurance Program (DRAP) might be considered here, which would include any Design Acceptance Criteria (DAC) associated with a particular facility design.

[F] <u>“Design/Fabrication Requirements”</u> cover those ITAAC that refer to Code (e.g., ASME) requirements for the fabrication of material and components or discuss the adequacy of design by reference to analyses, calculations, bounding condition checks, functional assessments, engineering evaluations and other design reports. However, if “Welding“ is the primary fabrication process, this is better categorized in [B]. If construction or operational “Testing” result in design parameters/measurements, this is better categorized in [C] or [D]. Also, if the design analyses involve programmatic “Qualification Criteria” (e.g., seismic), this would be better categorized in [E]. Where a report exists, or the functional capabilities of the system/components are analyzed, to confirm compliance with general Code requirements versus specific test results or programmatic qualification criteria, it should be covered here under [F].

[X] denotes an undefined Column Classification. It is initially to be used as a “placeholder” for those ITAAC whose written descriptions do not provide sufficient information to categorize the ITAAC in any common area [A] thru [F]. Use of the [X] category is not intended for cases where the ITAAC, as written, could be interpreted to fit more than one column. In such cases, judgement should be used in selecting the most appropriate column category. An appropriate use of [X] would be when the ITAAC only provides reference to other Tier 1 material. As a placeholder, [X] may ultimately be replaced by one of the defined column classifications after review of the referenced information is accomplished and judgement is exercised in selecting the appropriate category [A] thru [F]. With respect to a limited number of ITAAC, column [X] could become a final category in the completed Matrix to provide evidence of the interdependence of certain ITAAC as they refer to each other or to common Tier 1 material. A common example of this would be where the ITAAC is considered complete when all the ITAAC in a section or table referred by the original ITAAC are considered complete. In such a case, [X] would then be documented as the final column category for the original ITAAC.

<u>Row Classification</u>

(01) <u>“Foundations & Buildings”</u> include geo-technical (e.g., rock) investigation, civil surveying, elevation grading, pre-construction preparations (e.g., “mudmats”) and site layout, including the arrangement of buildings and structures; except that the Containment, as a separate “Building”, is covered by line (11) while its “Foundation” is covered here with all site foundations. This category also includes the building framework, like the structural steel and bolting materials. However, any ITAAC discussing the details of construction of the buildings that are more specifically defined by other Matrix rows will be classified by that applicable process [i.e., “Structural Concrete” (02) for concrete buildings, “Mechanical Components” (06) for large metal tanks, or “Engineering” (16) for generic design criteria (e.g., seismic) of multiple buildings, like the nuclear island].

(02) <u>“Structural Concrete”</u> includes all the materials (e.g., cement and rebar) and processes (e.g., concrete batch mixing and delivery) that result in a steel reinforced concrete

placement, as well as embedments, anchors, anchorages, water barriers that are installed before or after the concrete placement, and structural grout. Any items that are installed in the formwork (for example, anchor bolts that are embedded in the concrete when placed) are covered by this line item, while items that are subsequently attached to finished concrete are covered by other functional categories; for example, concrete expansion anchors, which are known to provide piping support or electrical raceway support, are covered under lines (04) and (09) respectively. For work on placed and finished concrete, where the ultimate function is unknown (e.g., expansion anchors for general supports), such activities are covered here under (02).

(03) <u>“Piping”</u> includes all piping, whether safety-related or not, and covers all ASME classes including the reactor coolant pressure boundary, as well as piping referenced in other codes (e.g., B31.1). ITAAC that describe systems that deliver fluid flow through piping as the major function, as well as the pressure boundary function (e.g., the pressure rating verified by hydrostatic testing) of such systems, are best categorized here. However, if the system functions and test acceptance criteria are more complex, involving diverse component interactions, the ITAAC might better fit (14) for “Complex Systems w/ Multiple Components”.

(04) <u>“Pipe Supports & Restraints”</u> apply to all classes of piping and all types of supports (e.g., snubbers, struts, anchors, guides) and pipe whip restraints. The seismic adequacy of piping systems would likely be applied here in (04). However, if the ITAAC focuses on the seismic qualification of a unique component (e.g., a pump) instead of the piping system, “Mechanical Components” (06) would be most appropriate line for categorization.

(05) <u>“Reactor Pressure Vessel (RPV) & Internals”</u> includes any fuel checks/inspections. While the RPV may be considered a mechanical component or part of a fluid-flow system, it is uniquely covered here, along with the reactor internals and fuel. However, any instrumentation internal to the RPV (e.g., “in-core”) or associated with the fuel (e.g., thermocouples) is best categorized on the I&C line (10).

(06) <u>“Mechanical Components”</u> include all classes (ASME or non-safety) of various types of equipment (e.g., pumps, heat exchangers, strainers, etc.), but not “Valves” (07) and not the “HVAC” equipment of line (12). It also includes any mechanical equipment support that is unique (e.g., a steel pedestal) to the component, rather than part of the building structure [e.g., concrete pads with anchor bolts that are part of “Structural Concrete” (02)]. Storage tanks that are fabricated metal components would fit here (06), but concrete tanks with only a liner, may best fit under “Structural Concrete” (02).

(07) <u>“Valves”</u>, regardless of the type of operator (e.g., motor, hydraulic, air, squib, etc.), are considered here as a separate category of mechanical components because of the unique nature in the way they are described in the ITAAC. This category covers all valves, including check valves and any other valves of a similar self-actuating nature. Also, any valve functions related to containment isolation are covered in line (11), “Containment Integrity & Penetrations”.

(08) <u>“Electrical Components & Systems”</u> include all electrical equipment (e.g., diesel generators) and supporting distribution components (e.g., switchgear), except for the

cables. Because of their unique nature, containment electrical penetration assemblies are included here instead of line (11).

(09) "Electrical Cable" involves all cable and includes the raceways (e.g., conduit, cable tray) in which it is run and the raceway supports (e.g., "unistrut"), unless they are part of the building structural steel (01) or pipe supports (04).

(10) "I&C Components & Systems" include sensing instrumentation and actuation control equipment, including the system hardware (e.g., signal process cabinets) and logic process devices, as well as the related signal initiation, control and annunciation checks, e.g., including those for the Main Control Board (MCB). Displays on the MCB and the retrieval of the information from the MCB windows or other panels and cabinets in the main control room (MCR) would be covered here. However, low-voltage instrument cable is covered under (09), "Electrical Cable", with all other cable.

(11) "Containment Integrity & Penetrations" involve the Containment structure and boundary, including all aspects of the containment isolation function. Therefore, any containment isolation check (e.g., a valve closure) or integrity criteria (e.g., hatch leakage) are covered here, instead of line (07) for valves or line (06) for mechanical components. However, the containment concrete material and placement is covered by "Structural Concrete" (02) and the electrical penetration assemblies are considered "Electrical Components" (08).

(12) "Heating, Ventilating & Air Conditioning" [HVAC] involves air distribution and environmental control systems from a functional standpoint, thereby including all mechanical, electrical, and I&C equipment that is directly related to the HVAC function or system performance.

(13) "Equipment Handling and Fuel Racks" includes the components involved with equipment handling and movement (e.g., polar crane), fuel movement (e.g, fuel bridges) both inside and outside of containment, and the spent fuel storage racks and related equipment. The fuel itself is not covered here, but rather in line (05) as an "internal" component.

(14) "Complex Systems with Multiple-Components" is intended to cover categories that discuss attributes that cross disciplinary boundaries, for example electrical, I&C, and valve response are all connected to the same ITAAC. This would also cover any ITAAC that refer to Tables of equipment, that would fit multiple lines of the Matrix if the components were evaluated separately; for example, a Table that lists valves, mechanical components, and I&C components. This category should be used when the nature of the ITAAC does not lend itself to clear placement in one of the other categories. However, even for complex systems, where the ITAAC focus is specific (e.g., the pressure boundary function of an integrated piping system), the matrix category (in this example line (03) for piping) that best fits the focal point of the ITAAC should be selected.

(15) "Fire Protection" includes all related material, equipment, systems, processes, and programs.

(16) <u>"Engineering"</u> is a separate line to distinguish it as a "process" separate from the construction activities that result in the SSC and products on the other lines. If design criteria (e.g., flooding analyses) are the dominant focus of an ITAAC (e.g., building room boundaries) "engineering" would apply. Similarly, for design issues (e.g., seismic) and more subjective areas (e.g., human reliability analysis) that cross disciplinary boundaries, are "engineering" oriented, and difficult to categorize on any other line, the most applicable categorization may fit here under line (16).

(17) <u>"Security"</u> and <u>(18) "Emergency Planning" (EP)</u> are separate lines to cover the systems, processes, and programs related to these activities.

(19) <u>"Radiological Protection"</u> includes not only all radiation protection (RP) components and RP system functions, but also those processes and programs related to RP, similar to the way fire protection and security systems and programs fit under lines (15) and (17) respectively. An ITAAC that refers generally to the EP function, which might include radiological protection, is better categorized under line (18); while a more direct reference to RP equipment functionality and the programs that support the use of RP data would fit here under line (19).

(00) Denotes an undefined Row Classification. It is initially to be used as a "placeholder" for those ITAAC whose written descriptions do not provide sufficient information to categorize the ITAAC in any specific process category (01) thru (19). Use of the (00) category is not intended for cases where the ITAAC, as written, could be interpreted to fit more than one row. Line (14), as an example, provides a Row for cases where the ITAAC description may cover different processes. In all cases, however, judgement should be used in selecting the most appropriate row category. An appropriate use of (00) would be when the ITAAC only provides reference to other Tier 1 material. As a placeholder, (00) ultimately might be replaced by one of the defined row classifications after review of the referenced information is accomplished and judgement is exercised in selecting the appropriate category, (01) thru (19). With respect to a limited number of ITAAC, row (00) could become a final category in the completed Matrix to provide evidence of the interdependence of certain ITAAC as they refer to each other or to common Tier 1 material. While this is unlikely because the ITAAC are organized by systems and also because row (14) accounts for systems with multiple components, there may be unique cases of ITAAC interdependence where row (00) is listed as the final row category for a specific ITAAC.

APPENDIX C: SAMPLE SELECTION PROCESS

This appendix describes a methodology for prioritizing NRC inspection resources for the Construction Inspection Program's inspections, tests, analyses and acceptance criteria (ITAAC) detailed in the Inspection Manual Chapter 2503 "ITAAC" (IMC-2503). The overall objective of this process is to optimize NRC resources, while providing reasonable assurance that a significant flaw by the licensee does not go undetected (i.e., all ITAAC have been satisfied). The proposed prioritization provides a structured method for deciding which ITAAC should be given priority for inspection. Implementation of this method requires an expert panel and periodic updates of information to incorporate inspection history.

A prioritization methodology was chosen for resource optimization as opposed to acceptance sampling. Simple statistical sampling would call for inspection at random, whereas the proposed methodology provides an educated and dynamic inspection. Further, the procedure-based nature of ITAAC activities call for periodic inspections over the course of the entire inspection program that correspond with current licensee performance. A prioritization methodology will be able to account for the inspection history more so than acceptance sampling.

The methodology requires that the ITAAC be classified and grouped based on the activity required to satisfy the ITAAC. This is necessary to create groupings of ITAAC that all involve the same activity. Judgement is needed to decide exactly what "same activity" should involve and has been determined to correspond to an intersection of the NRC ITAAC Matrix. Once grouped, the ITAAC may then be prioritized within the group. The overall approach is that observing licensee performance of the activity with one component (or ITAAC) provides insights on licensee performance regarding other components.

With all ITAAC classified and assigned to Inspection Groups, the sampling methodology occurs in two steps. The first step involves the rank-ordering of ITAAC based on defined attributes that make one ITAAC more or less important to inspect than others. These attributes are ITAAC characteristics of: Safety Significance, Complexity of the Activity, Construction and Testing/Training Experience, Licensee Oversight Attention, and Difficulty of Verifying by Other Means. The attributes are weighted according to their impact on the overall objective. Then, each ITAAC is rated for each attribute. The attribute of safety significance is addressed using specific Probabilistic Risk Assessment (PRA) data.

This prioritization process is managed such that the rating given each ITAAC will correlate to the amount of assurance one can obtain from inspecting that ITAAC. In this way, it is not the ITAAC that are prioritized, but rather the value of inspecting that ITAAC to the overall objective of optimizing resources to ensure that no significant construction flaw is undetected. The second step used in the methodology includes a portfolio perspective or "coverage check" for all ITAAC. It requires that at least one ITAAC from every group be inspected. Further, the approach assures that a diverse set of ITAAC have been inspected such that it represents the entire ITAAC population.

On a higher level, the prioritization process acts as part of a feedback loop of information. This feedback is necessary for an ITAAC inspection effort that is ongoing over the course of the inspection program. The methodology splits the process into two stages, an initial inspection and all subsequent inspections. NRC will initially inspect focusing on activities related to high priority ITAAC. More focused inspections will follow at specific points in the inspection program based in large part on inspection experience to date. See Figure 1 at the end of this appendix.

Both approaches act to guide the NRC in its inspection program to optimize resources and ensure that no flaw is undetected. That is, the prioritization process assists in making the ITAAC inspection both efficient and effective.

Attribute Definitions

The attributes and their definitions are described as follows:

3. Complexity or Difficulty of Activity - The degree of likelihood of errors occurring in the process of fabrication, installation, or testing. As an example, a bimetallic weld on the reactor vessel safe end might be more difficult than welding structural steel for a seismic pipe support. The degree of training or certification required of the “doer” such as a Level III NDE technician is an indicator of the complexity. This typically is also related to the concept of a special process which has requirements associated with it per 10CFR50, Appendix B.

4. Construction and Testing/Training Experience - To the extent known, whether the testing or construction activity is a “first of a kind” (FOAK) for construction or a new test conducted by a group with little experience. Experience in this case may mean limited work in the nuclear field, in a field with quality assurance requirements, or in strict adherence to procedural controls. Additionally this includes whether there is a history of quality or other performance deficiencies associated with the company or the activity.

5. Difficulty of Verifying by Other Means - The degree that the activity can be verified by observing other functional, pre-operational tests, or performance tests. This would also include the degree to which the sequence is a factor; for example, the lack of access associated with buried piping or cables, coatings inside tanks, or physical interferences. This would result in a preference to inspect now while the opportunity exists, or to defer the inspection until later when it may be just as useful to witness the pre-operational test instead.

6. Safety Significance - The safety significance assigned to the system, component, or structure included in the ITAAC. This attribute will be defined by a PRA weighting factor which will be assigned separate to expert panel evaluation of the other attributes.

7. Licensee (or applicant) Oversight Attention - The amount and effectiveness of the applicant or licensee’s oversight attention and quality assurance efforts, including those of its contractors and suppliers. This also includes those self-assessment reviews or independent audits in addition to the specific QA effort. Note this may not be known early in the sequence of construction activities or until NRC has experience inspecting the licensee’s QA efforts and other self-assessment activities and generated an opinion of their performance. It is assigned periodically based on inspection results.

ITAAC Prioritization Process

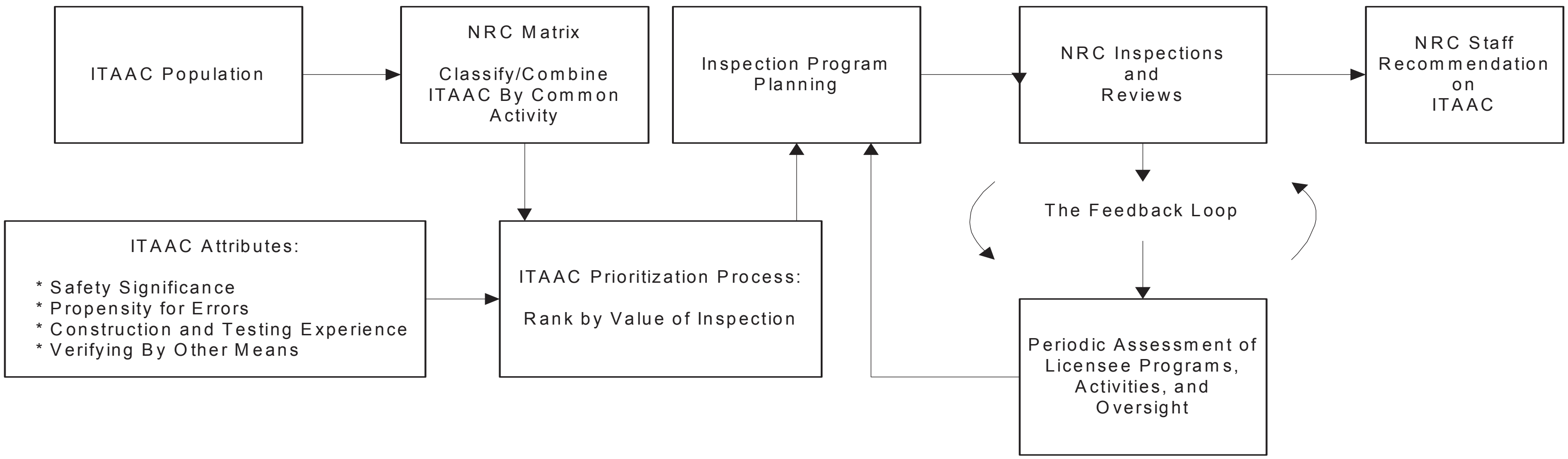

Figure 1

Overall Objective of Prioritization: Optimize NRC resources, while providing reasonable assurance that a significant construction flaw by the licensee does not go undetected (i.e., all ITAAC have been satisfied)

- A prioritization methodology is used (as opposed to statistical sampling), which provides an educated and dynamic inspection.
- Implementation of prioritization requires an expert panel and periodic updates of NRC information on licensee inspection history.
- The methodology prioritizes the *value* of inspecting the ITAAC, rather than the ITAAC themselves.
- The methodology utilizes structured decision-making processes to evaluate ITAAC based on certain attributes.
- A portfolio approach ensures that a diverse set of ITAAC are inspected.

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APPENDIX D

Revision History For IMC 2503

Commitment Tracking Number	Issue Date	Description of Change	Training Needed	Training Completion Date	Comment Resolution Accession Number
N/A	04/25/06	Initial Issuance	None	N/A	N/A